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ABSTRACT

Reported are implications of the genesis and development of joint action between Spanish adults and their infants for early first language acquisition. Focusing on the naturally occurring context of the "give and take" game format, this investigation discloses the role of the interaction pattern in the language acquisition process, including the beginning and development of query techniques, the linguistic and conceptual elaboration of terms associated with first actions, and the use of the first deictic terms. Observations support the view that very early in life infants find themselves involved in highly ranked joint action routines, the progressive mastery of which represents true "pragmatic learning." The practice of activities such as the "give and take game" allows the infant to dominate the course of action, thereby regulating its activity with an adult through the use of a vast set of communicative procedures. Over time, these procedures are generalized across similar situations, becoming "regulatory categories." In joint action the child elaborates notions, such as agent, action, receiver, place, possession, etc., and establishes many distinctions about its physical environment. Such distinctions are usually linguistically marked in the adult's language and provide easy access to grammatical specifications marking semantic relations. Once fundamental rules are mastered, specific joint action formats are expanded across a vast number of situations, thereby allowing greater linguistic complexity. (RH)

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# LEARNING TO REGULATE JOINT ACTION

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## INTRODUCTION

The study of language uses related to the mastering of action has become a focus of special attention for those authors who study a child's first language from a functional approach.

Halliday (1975) established, within his categorization system for language functions, the instrumental, regulatory and interactive functions as being responsible for the regulation of a child's interaction with its environment. He distinguished the instrumental function, related to object requirements, from the regulatory function, related to action requirements and the interactive function, which would exercise interactive control by means of "action requirement" or "vocative" type utterances.

Other authors like Carter (1975), Dale (1980) and Barret (1980), in an exhaustive enumeration of the first uses of language, specify their regulatory uses by means of categories of the type: "present action or object requirement", "action requirement", "transfer requirement", etc. McShane (1980) includes, together with a "pragmatic function", in which those mechanisms aimed to regulate other's action is included, the "interchange function" which refers to those terms appearing during a child-adult interchange of objects situation.

Finally, Vila (1984) proposed a single category of regulation including all those procedures used by children in their first language to regulate joint action: procedures of attention, requirement and vocative gather the uses of language about objects, actions or people in an attempt to direct the course of interaction.

Joint action contexts constitute the natural scenes "par excelence" for the practice of these first functions of language. These are situations in which adult and child build and knock down a tower, put in and take out an object repeatedly or transfer it from one to the other. In a joint action situation, adult activity consists of specifying the form to regulate it and ordering the child's sorrounding physical world in order to make its distinctions evident.

In this way, the characteristics of these contexts, structured and ruled by a series of rules, "scaffold" the language acquisition process, making

easier the incorporation of its grammatical distinctions.

Our work, centred on the "give and take" game, is an attempt to show the role of this format in the language acquisition process. Its study shows the beginning and development of requirement techniques, the linguistic elaboration of terms related to first actions and the emergence of the first deictic terms.

## METHOD

### a) Subjects

Our three subjects Mª del Mar, Roger and Emilio, belong to medium/high socio-cultural level families. Mª del Mar was incorporated into the study when she was 1;2. Emilio was 0;10 and Roger 0;5. Emilio speaks Castillian exclusively in the family environment while Mª del Mar and Roger use Catalan when speaking to their fathers.

### b) Procedure

Subjects were video-taped at home every 2/3 weeks during periods of 45 min. of adult-child interaction. Most sessions had an emphasis on the mothers, although on several occasions, fathers or both parents, took part in the interaction. Adults were told that we were carrying out a study on bilingualism, they were not given any instructions.

All material obtained was transcribed following a 4 colums system where adult language, child language and both non-verbal behaviours were specified.

All those situations in which adult and child were jointly engaged on an object or an interchange activity were considered "give and take" contexts. The context begins very early and by the first year of life children master their rules on Roger and Emilio data, being completed with those of interest from Mª del Mar situations.

## RESULTS

Results cover different sections. First, we remark on global aspects of

situations implying constitution, development and implication of its participants. Secondly, we study the implications of the context for linguistic and conceptual elaboration of terms associated with first actions and especially of the use of deictic reference.

The beginning of the "give and take" game situations in the Toni-Roger couple takes place at 0;5,5 when during the course ofaction, the adult shows a commonly encountered object to the child to obtain his attention.

OBSERVATION I : Roger 10;5,5

(Roger is sitting in a chair after lunch )

| | | | |
|---|---|---|---|
| (lifts the belt which ties Roger to the chair) | M: mira/ [R] | | (motionless, [M]) |
| (shows the belt to R) | M: toma/la correa de tu silla que te gusta tanto/ [R] | | (motionless, [belt] ) |
| (waves the belt in front of R's face) | M: mira/x/ [R] | | |
| | | ah (:)/ [belt] | (stretches his arm towards the belt) |
| (leaves the belt) | M: Oh/ que bonita es/ | | (takes the belt, [belt]) |
| | | babbling/ [belt] | (he holds the belt) |

The interactive activity within this first moments of the format is directed to the training of Roger as "taker". The procedures so used by adult are basically centred on maintenance of attention through waving and drawing the object closer touching his body with it and the offering, made by the use of the terms toma (take(this)) o ten (have(this)).

The baby-talk used during the situation is exclusively employed with these functions, including, besides the offering terms, attention vocatives like mira (look) or comments for its maintenance like oh, que bonito es (oh, how nice it is).

In these sessions the "attempt" of getting on Roger's part is not an explicit requirement. His gaze does not seek out the adult but is centred on the

object. His mother provokes this attempt by considering the child's arm stretching in acommunicative way, assuring, therefore, the object transfer.

One month later, Toni introduces a new mechanism to train Roger in object recption.

OBSERVATION II : Roger (0;6,1)

| | | |
|---|---|---|
| (M takes a woden dog) | | |
| (waves the dog) | M: mira/[R] | (motionless, [dog]) |
| (presents the dog to R) | M: toma/[R] | (motionless, [dog]) |
| (withdraws the dog away form his face) | M: Venga/que te coge/[R] | |
| (presents and withdraws the dog) | M: venga/[R] | |
| | | (stretches his arm towards the dog, [dog]) |
| (offers the dog) | M: venga/toma / [R] | (takes the dog, [dog]) |

Her activity now includes, together with utterances like venga (come on), va (come), cójelo, cójela (hold it), etc, a series of movements for the maintenace of attention which constitute a whole strategy of "incitation to action". Roger shows similar behaviour to that of one month earlier. There are no signs of Roger consideration of the adult as an agent and, therefore, capable of helping him with his attempts to get the objects.

When Roger is 0;6,13 there are no important variations respecting the "give and take" game. However, Toni starts a new form of joint action with Roger. The situation, which takes place as a game (mother and child alternatively strike a cushion with their hands) is the first moment in which Toni makes Roger know she is a potential agent of actions. The situation structure is marked linguistically by the adult's baby-talk. It's not a "give and take" context in its literal sense, but it has the same structure and precedes the mother's attempts to make Roger a "giver" of objects.

Toni uses a vocative of attention, mira (look), to call Roger's attention

to her action (beating the cushion). Then, she gives her turn to Roger by means of the word tu (you), while she "scaffolds" his improbable behaviour holding his hand and directing it towards the cushion so as to strike it together. She marks, then, Roger's "action" with the term pam, repeating it several times. This permanent repetition of equivalent terms makes possible the incorporation of the terms as a part of the whole situation, helping to fix its pattern, and to section it. In this way its use implies the taking of a turn which, itself, invites the other participant to take the following turn.

Terms used by Toni during this period refer exclusively to her efforts to make Roger become a good "taker". FIGURE I shows the distribution of these terms between the moment the format appears (0;5,5) and the 0;6,13.

FIGURE I

Distribution of Toni's language in the "give and take" game between 0;5,5 and 0;6,13

| Edad | Ten | Toma | Toma el/la X | Toma tu x | Toma Y | TOTAL |
|---|---|---|---|---|---|---|
| 0;5,5 | 0 | 3 | 1 | 0 | 0 | 4 |
| 0;6,1 | 1 | 42 | 1 | 2 | 1 | 47 |
| 0;6,13 | 1 | 11 | 1 | 0 | 1 | 14 |
| TOTAL | 2 | 56 | 3 | 2 | 2 | 65 |

The form toma (take (this)) appears inflected (tom-a) is the main mechanism used by Toni to mark her offerings. Its grammatical specification, form the double view of semantic and pragmatic implications, remarks the objective of the mother's effort during this period. Later on, when Roger is 0;8,0 new issues in the development of the format appear:

OBSERVATION III: Roger 10;8,0

(Roger and his mother play with a set of keys)

(Stretches his arm towards the keys, keys )

| | | |
|---|---|---|
| (puts the keys at Roger's arm's lenght) | M: si/venga/ fuerte/x/x/ [R] | (laughs, stretches his arm towards the keys, [keys] ) |
| | M: venga/x/ [R] | (takes the keys, [keys] ) |
| (pulls the keys out) | M: fuerte que me las llevo/ [R] | (laughs, pulls the keys [keys] ) |
| | M: corre que te las quito/ay/x/x/x/x/ x/x/x/ [R] | (laughs, pulls the keys [keys] ) |
| (lowers her arm with the keys) | M:uhy/ [R] | (pulls the keys, [keys] ) |
| | | (he keeps the keys, [keys] ) |
| (shows her open hand to R) | M:dame/dame/ [R] | |
| | | (touches M hand with his hans, [M's hand] ) |
| (takes a key, pulls it up) | M: venga/x/ [R] | (laughs, pulls the keys, [keys] ) |

Ontlie one hand, the mother's efforts start to produce a good result and Roger begins to "know" the adult as a means of getting his objective, that is to say, as an agent of an action as well as a receptor of it. Roger not only stretches his arm to get the objects Toni offers him in an attractive way but he starts using this procedure independently stretching his arm to any object of his interest, shown or not by his mother. This behaviour, is accompanied by an alternate look object-adult in search of an explicit support from the adult by treating her as an agent of action. This marks the beginning of the requirement techniques.

On the other hand, the adult increases Roger's possibilities as an agent of actions: diversifies her "incitations to action" (cójelo, cójelos, cójelo fuerte, tira fuerte, corre (run), etc.), marks linguistically (by means of the term dame) her requirements of action and decreases the attention maintenance phase length previous to the offering phase.

At this moment of the format development the relationship between requirements, and offerings starts varying tending to equal one another.

**FIGURE II**

Relation between offering and requirement

| Age | Offering | Requirement | Total |
|---|---|---|---|
| 0;5,5 | 4 | 0 | 4 |
| 0;6,1 | 48 | 0 | 48 |
| 0;6,13 | 14 | 0 | 14 |
| 0;8,0 | 24 | 3 | 27 |
| 0;10,22 | 15 | 11 | 26 |
| TOTAL | 105 | 14 | 119 |

This mother activity provokes important changes for the whole of the interactive situation. Roger can now iniciate cycles by himself. Therefore, joint action situations start having on interchange structure. The next observation, at the age of 0;10,22, marks the beginning of the characteristic "give and take".

**OBSERVATION IV: Roger 0;10,22**

(Roger and mother play with a ball)

| | | | |
|---|---|---|---|
| | | | (takes the ball, [M] ) |
| (moves her head forward) | M: tiramela/ [R] | | (pulls the ball, [ball] ) |
| (takes the ball) | M: Venga/ [pelota] | | (motionless, [ball] ) |
| | | | (leans forward) |
| | M: pumba/ [pelota] | R: eaua/ [pelota] | (pulls ball, [ball] ) |
| (takes the ball) | | | (motionless, [ball] ) |
| (pushes the ball towards R) | M: pumba/ [ball] | | |

The child's interest, now, is no longer centred on retaining the object, but on participating in actions where the object is rapidly transferred. The time during which the child holds the object keeps on reducing and juxtaposed vocalizations start appearing in the action of giving or taking.

The adult, on her part, decreases, even more, the offering phase (maintenance of attention), starting to diversify her requirements by the incorporation of new verbs (tirar (throw) for instance). It is the beginning of symmetry in the interaction.

At the age of 0;11,9, Roger produces his first linguistic terms in the "give and take" situation:

OBSERVATION V: Roger (0;11,9)

(Roger and mother with several toys)

| | | | |
|---|---|---|---|
| (moves her hand outstretched) | M: dame/ [R] | | (He has a wheel in his hand he shakes it, [wheel] ) |
| | | | (motionless, [wheel] ) |
| | | | (turns his face round, [M,s hand] ) |
| | | | (turns his head round, [wheel] ) |
| | | | (Shakes the wheel, [wheel] ) |
| (stretches her hand) | M: Roger/dame/ [R] | | (lifts the wheel, [wheel] ) |
| | | R: tá/ [wheel] | (gives the wheel) |
| (takes the wheel) | M: Gracias/ [R] | | (motionless, [M] ) |
| (approaches her face) | M: gracias/ [R] | | (motionless, [M] ) |
| (offers the wheel to R) | M: toma/para tí/ [R] | | (motionless, [M] ) |
| | | R: tá/ [.] | (turns his head) |
| | M: ya está/toma/ para tí/ [R] | | (turns his head) |
| | | R: ya está/ [M] | (stretches his head) |
| | M: vale/para tí/ [R] | | (touches the wheel, [wheel] ) |

Roger pronounces tá at the moment of giving and as a rejection to continue the action. Toni, understands it especially the second, as ya está (finished)

which is clearly produced when he gets the object after the mother's offering. This use marks the generalization of this utterance (or its phonetic reduction tá), characteristic of highly structured situat ions usually related to subsistence functions (dinner, washing, dressing, etc). Roger generalizes this mechanism to regulate his action with the adult, using it to mark an action (give and get) or as a rejection, in the sense of stopping the action.

Toni, on her side, starts to introduce a vast variety of pronominal uses with deictic reference which specify her requirements and offerings, as well as her "incitations to action" (para tí (for you), for example).

When Roger is one year old (1;0,8), he begins to meet the more complex requirements of the adult.

OBSERVATION VI: Roger (1;0,8)

(Roger has a lighter in his hand)

| | | | |
|---|---|---|---|
| (extending her open hand to R) | M: a ver/Roger/ a ver/x/ [R] | | |
| | | | (plays with the lighter, [lighter] ) |
| | | R: ah (:)/ [M] | (lifts head) |
| | | | (leaves lighter on the sofa and approaches M, [M] ) |
| (extends her open hand to R) | M: déjamelo/x/ [R] | | (turns round, [lighter] ) |
| (P gives the lighter to Roger) | P: dona-li a la mama/ (dáselo a mamá) /corre/corre/ [R] | | |
| | | | (takes the lighter, [lighter] ) |
| | | | (turns to M with the lighter, [M] ) |
| | | R: ah (:)/ [M] | (gives the lighter to M ) |
| (takes the lighter) | M: gracias/ [R] | | |

Roger is now able to participate in "give and take" routines of two people or more, which diversifies the amount and quality of joint action, permits a wider pronominal use (dona-li (give it to her), dale, dime (tell me)) use and makes possible the establishment of comments about the action, together with the introduction of terms of place.

Once Roger has met the different requirements mainly formulated by the term dame, the adult introduces a new form of requirement:

OBSERVATION VII: Roger (1;1,21)

(Roger and mother play with a chicken)

(shows the chicken to M, [M])

(Extends the open hand to R)

M: me lo das?/
[R]

(extends the chicken to M, [M])

Linguistic marking now is different. The interrogative tone does not imply a use limited to a question, but the adult uses it to accomplish many other functions such as, for example, the requirement. This use increases in the three mothers studied from approximately the 15th month:

FIGURE III

Increase of requirements in interrogative tone in adult's speech, used in the "give and take" game between 12 and 18 months

| | | Req. totales | Req. en tono ¿? | % de Req. tono ¿? |
|---|---|---|---|---|
| 12-15 meses | Mª Jesús | 7 | 0 | 0 |
| | Toni | 38 | 1 | 2.63 |
| | Inés | 14 | 1 | 7.14 |
| 15-18 meses | Mª Jesús | 52 | 6 | 11.54 |
| | Toni | 6 | 2 | 33.33 |
| | Inés | 24 | 9 | 37.50 |

With the progression of the format new terms to regulate joint action appear in the adult's speech: the group of possessive terms (ten la tuya (have yours), mío (mine), no es tuyo (is not yours), etc), the demonstratives, basically by the distinction este/aquel (this/that) and a vast number of terms of place: aquí (here), allá no (not there), ven aquí (come here)

The use of the term ten (have (this)) is of great interest in the study of the problems facing the child in relation to deictic reference. Our three subjects, at a concrete moment in their development used incorrectly this term. Ten is used by the infant when it receives the object, and generalising its use, when it wants the object.

The explanation for this fact comes from the use of the term adults usually employ. From the beginning of the "give and take" sequences there was a difference in the use of the terms ten (have (this)) and toma (take (this)) in our three subjects. Toma is used in the offering phase, usually linked to the maintenance of attention, while ten appears associated to the action in which the infant receives an object, the adult transfers it, and, therefore, it is not strange that the same child using ten as an object requirement uses it when transfering the object to another adult. The infant learns that two actions (giving by one person and taking by the other) are implied in the term ten, but it implies a single direction, from the agent to the receiver. The use of dame which involves the same actions, implies the opposite direction, from the receiver to the agent.

The adult's use of both terms is, as we have seen, distant in time as the adult "makes", first a good receiver of the child, therefore, the term ten, is more frequent in the adult's speech and, above all, its meaning within the action is understood much earlier than dame, making possible, consequently, its earlier incorporation into the infant's vocabulary.

## CONCLUSIONS

The analysis of the joint action situations specified in the study of the "give and take" game reveals as very important for the child the elaboration of a series of concepts which have a lingüistic correspondence. When the child has a good command of them, it is able to master one of the most important factions of language: to regulate anybody else's behaviour.

From the first moments of life children find themselves involved in joint action routines, highly ranked, which progressive mastering represents a true "pragmatic learning".

To participate in a joint action context, "give and take" in this case, implies the knowledge of a series of rules which became explicit by "I give, you get", then, "you give, I get", etc. Besides, the setting of the game, the probability of keeping the object, the unwillingness to transfer it, etc, must be specified. The practice of this activity allows the infant to dominate the course of action in such a way that from a concrete moment, the child participates actively in these routines using a vast set of communicative procedures to regulate its activity with the adult. There are mechanisms such as "extending the arm" as an attempt to take the object, "showing an object" to attract the adult's attention and start the game, and lexical utterances such as, ten (have (this)), toma (take (this)) or ya está (finished). With time, these are generalized in similar situations, becoming what we call "regulatory categories".

The requirement, as we have seen, implies the knowledge of the adult as an agent, but, also the knowledge of itsefl as such, for instance, when the child invites the adult to participate in a joint action. The child must elaborate, therefore, notions such as agent, action, receiver, place, possession, etc, establishing, in this way, a whole variety of distinctions are about its physical environment. Such distinctions are usually linguistically marked in the adult's language by means of the specifications with which the grammar contributes to the linguistic code (e.g. inflectioning-non-inflectioning) making easier the access to grammatical specifications which mark semantic relations.

Sometimes, these acquisitions imply some incorrect uses because the child does not master all the semantic aspects involved, obliging a prior restructuring of the functional scope. That is the case in the use of the first deictic couples ten (have this) and dame (give me), whose functional elaboration is above within the format.

Finally, we must mention the condition of linguistic "melting pot" that these contexts have. Once the mastering of its fundamental rules is reached, it produces a progressive expansion to a vast number of situations, allowing a greater linguistic complexity and extent by means of the "comment" productions on the "theme", already shared by both participants. In this way, the diversification of these formats emphasizes even more, the role

as agents which facilitate the language acquisition process.

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